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(54) Composition in the Form of a Soft Paste Produced by Extrusion and a Method of Preparing Said Composition

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EP-A-0 602 905 EP-A 0 605 284

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Description

The present invention relates to a composition, specifically a cosmetic or skin care composition which is to be provided in the form of a soft paste which can be used for treating and/or making up the lips and/or skin. The invention also pertains to a method of preparing said composition.

EP-A-0 605 284 describes a solid or cream-like make-up composition which includes an oily phase and a powdered phase, as well as a method of obtaining a composition of this kind by its passing through an extrusion mixer.

Cosmetic compositions which can be applied to the skin or the lips as make up or as treatment products, such as lip foundations or lipstick, for example, may be provided as solid sticks in a manner representing the state of the art, with lipstick constituting an example, or as soft pastes which are applicable by means of brushes or pencils, for example.

Compositions in the form of sticks usually contain significant amounts of waxes, as well as oils, pigments, and/or fillers, along with additives when necessary. Compositions in the form of a soft paste usually contain no wax or small amounts of wax, whereby easy removal and application is allowed, inasmuch as a significant amount of wax would produce a composition with high viscosity, which would therefore be difficult to apply.

Waxes nonetheless allow incorporation of certain advantageous properties within compositions which contain them, especially such qualities as softness of compositions and such qualities as strength and thickness in terms of the coatings which are to be applied. It would therefore be desirable to obtain compositions in the form of soft pastes which may include significant amounts of waxes.

In addition, it would be advantageous to accentuate some of the cosmetic qualities of compositions possessing the form of soft pastes. Specifically, it would still be desirable to improve their softness during application to the lips or the skin, while also providing a certain moisturizing effect and certain forms of care for the underlying surface.

It would therefore be desirable for moisturizing or treatment ingredients, such as polyhydric alcohols, or agents which are specifically present within dispersions or solutions in an aqueous phase to be incorporated within compositions in the form of soft pastes. It has been observed, however, that polyhydric alcohols, and especially glycerin, in the same manner as aqueous phases in the form of gels, are incompatible with fatty substances in general. Indeed, it has also been observed that, instead of existing in the form of a sole homogenous phase, compositions containing fatty substances and glycerin exist in the form of two separate phases, which is a situation where problems with storage over the course of time are involved.

One of the means of overcoming this difficulty consists of incorporating a surface-active agent within a composition, especially when it is being provided in the form of a stick, so as to allow the composition to be maintained in the form of a sole uniform phase. The composition which is obtained may possess a certain irritating nature, however. It is also possible to select fatty substances in relation to polyhydric alcohols, with the knowledge that certain specific fatty substances are compatible with certain polyhydric alcohols, such as isoprene-glycol. This approach nevertheless involves significant limitations in terms of potential formulations.

The purpose of the present invention is to overcome these difficulties, and it offers a composition in the form of a soft paste which is especially uniform, although it includes lipophilic components such as fatty substances, on one hand, and hydrophilic ingredients such as polyhydric alcohols and/or an aqueous phase on the other hand.

One object of the present invention therefore consists of an extruded composition in the form of a soft paste, as defined within Claim Number 1.

Another object of the invention is a method of preparing the aforementioned composition whereby at least one portion of the process is completed with an extrusion mixer which allows mixing during at least one portion of cooling to an ambient temperature.

In a general manner, the method to which the invention pertains allows obtaining of a uniform composition from two phases which are incompatible with one another, with one of said phases being lipophilic while the other is hydrophilic.

One advantage of the present invention is that it allows preparation of uniform compositions with various formulations, without being limited by the presence of a certain type of fatty substances, for example.

Furthermore, the composition which is to be obtained can be stable and uniform, even though it does not contain surface-active agents.

The composition to which the present invention pertains therefore consists of a soft paste whose viscosity can be measured, in contrast to the solid structure of a stick, whose viscosity cannot be measured. Dynamic viscosity at 25° C. is usually situated between 3 and 35 Pa.s, according to measurement by means of a CONTRAVES TV rotary viscosimeter containing an "MS-R4" rotor with a frequency of 60 Hz.

A composition according to the invention therefore includes at least one lipophilic component which can be selected among the usual ingredients of an oleaginous phase such as waxes, oils, gums and/or paste-like fatty substances which contain hydrocarbons or silicones and may be volatile in some instances, while being present individually or within mixtures. Among types of waxes which may be considered, either individually or within mixtures, it is possible to cite: mineral waxes such as microcrystalline waxes, paraffin, petrolatum, vaseline, ozocerite, and montan waxes; animal waxes such as beeswax, lanolin, and its derivatives; waxes obtained from plants such as Candelilla, Ourrury, Carnauba, and Japan waxes, cocoa butter, and waxes obtained from cork or sugar cane fibers; hydrogenated oils, fatty esters and specific glycerides at 25° C.; synthetic waxes such as polyethylene waxes and waxes obtained by Fischer-Tropsch synthesis; silicone waxes; and mixtures of the aforementioned waxes.

Among oils which may be considered, either individually or within mixtures, it is possible to cite: mineral oils such as paraffin oil or vaseline; animal oils such as perhydrosqualene or arara oil; oils obtained from plants, such as oils obtained from sweet almonds, calophyllum, palms, castor beans, avocados, jojoba, and olives, or oils from the seeds of certain grains; silicone oils such as dimethylpolysiloxane; esters of lanolic acid, oleic acid, lauric acid, stearic acid, or myristic acid, for example; alcohols such as oleic alcohol, linoleic or linolenic alcohol, isostearic alcohol or octyl dodecanol; acetylglycerides, octanoates, decanoates, or rinolesates of alcohols or polyalcohols; volatile oils, such as cyclotetradimethylsiloxane, cyclopentadimethylsiloxane, cyclohexadimethylsiloxane, and methylhexyldimethylsiloxane, or isoparaffins.

A given composition may contain from 65% to 99% of a lipophilic ingredient by weight, and this ingredient may consist of waxes in an 8% to 40% proportion by weight and 60% to 92% oils by weight.

As a result of the method used for preparing the present composition, it is possible to add a significant amount of waxes to said composition, for example, approximately 15% to 25% by weight, without creating problems in terms of uniformity or formation of granules. The composition being obtained, which shall possess a high wax content, which is to exceed 10% according to weight, shall therefore be capable of forming a coating with suitable strength.

A composition according to the invention likewise includes at least one hydrophilic ingredient, which may be a polyhydric alcohol and/or may be provided in the form of a gelled aqueous phase.

A polyhydric alcohol may be a compound with 2 to 8 carbon atoms and 2 to 6 hydroxyl radicals, such as ethylene glycol, isoprene-glycol, glycerol, propane-1, 2-diol, diglycerin, erythritol, arabitol, adonitol, sorbitol, and dulcitol. A polyhydric alcohol can also be an alcohol polyether with a typical molecular weight of 150 to 600, such as polyethylene glycol 300 and polyglycerin 500. It is also possible to use a mixture of polyhydric alcohols.

Gelling of the gelled aqueous phase can occur with the presence of any gelling agent known to those skilled in the art.

As gelling agents, it is specifically possible to cite:

- Algae extracts, such as agar-agar, carrageen, and alginates;
- Grain extracts, such as carob or guar extracts;
- Fruit extracts, notably pectin;
- Plant exudates, such as gum arabic, gum tragacanth, karaya gum, and ghatti gum;
- Cellulose derivatives, such as carboxymethylcellulose;
- Gelling agents of animal origin, such as gelatin or caseinates;
- Exudates from micro-organisms, such as xanthan gum;
- Synthetic gelling agents, such as acrylic polymer derivatives (*Carbomer*, *Carbopol*, *Pemulen*) or silicon derivatives (*Lapointe*, *Lapomer*, or *Veegum*).

A gelling agent may be present within the aqueous phase in a proportion of 0.2% to 10% by weight in relation to said aqueous phase.

The hydrophilic component may possess a viscosity of 1 to 250 poises, and preferably from 30 to 250 poises. In turn, the lipophilic component may possess a higher or lower viscosity level than the hydrophilic component.

A composition may include 1% to 35% of a hydrophilic component by weight, and preferably 3% to 15% by weight, while this hydrophilic component may also exist in the form of a mixture consisting of a gelled aqueous phase and a polyhydric alcohol.

A composition may also include any ingredients which are customarily used within the respective field of application, notably anti-oxidants, fragrances, essential oils, preservation agents, cosmetic agents, moisturizers, vitamins, essential fatty acids, sphingolipids, sun blocks, surface-active agents, dyes, pigments, mother of pearl, fillers, and polymers. Depending upon the nature of these additional ingredients, they may be added to the lipophilic component or to the hydrophilic component during preparation of the respective composition. Of course, technically experienced persons shall ensure that these possible additional ingredients, as well as the amount thereof, shall be selected in such a manner that the advantageous properties of a composition according to the invention shall not be altered or shall not be substantially altered by adding the respective ingredients.

A composition according to the invention may be provided in the form of a make up product for the skin, especially in the form of a foundation, a facial rouge, or an eye shadow, mascara, or an eye liner, lipstick, or a basic coating for the lips, or even in the form of a skin treatment product, or a sun protection or tanning product, or even in the form of a hair care product.

A composition according to the invention allows obtaining of a coating which can be easily and uniformly spread with a certain gentleness. The coating which is obtained possesses a light texture, and it remains comfortable when worn throughout the day. It also possesses suitable strength. The composition which is obtained likewise possesses suitable emollient properties when it is applied to the skin.

A composition according to the invention may be prepared in an advantageous manner by means of an extrusion mixer. It is possible, for example, to prepare a preliminary mixture containing at least a portion of the different ingredients of the respective composition, including those which possess high melting temperatures. Then this preliminary mixture can be heated to a temperature at which it shall melt, and the remaining ingredients can be added at one or more points, and the mixture which is obtained can then be mixed in a extrusion mixer, during at least one portion of its cooling to ambient temperature.

It is also possible to introduce all of the ingredients in a cold or warm state, into the top portion of an extrusion mixer, and, ultimately, to increase the temperature of the mixture until a uniform mixture is obtained, while mixing it and continuing to mix it during at least one portion of its cooling to an ambient temperature.

It has been observed, in fact, that this method allows a composition which exists in the form of a soft, uniform paste to be obtained, although it contains a hydrophilic component and a lipophilic component.

It is possible for the heating stage to be completed according to any known technique, and specifically, to complete it directly within the extruder.

Different stages of the process may be completed within one or more extruders which are sequentially positioned in relation to one another, and preferably within a single extruder with twin screws.

It has been observed, in fact, that a composition obtained after extrusion possesses a distinct softness and provides a certain sensation of smoothness when it is applied to the skin, even though the appearance and the sensation of oily substances is avoided.

Conditions where extrusion may take place are described within Patent Application FR94-00756.

The present invention is described in greater detail within the following examples:

Example 1:

Lipstick is prepared in the form of a soft paste with the following composition:

• Jojoba oil	15 g
• Castor oil	10 g
• Lanolin	10 g
• Beeswax	10 g
• Polyethylene wax	15 g
• Polybutene	5 g
• Polyglycerin	20 g
• Pigments and fillers	15 g

The hydrophilic and lipophilic phases are separately introduced into an extruder with twin screws, at an incoming temperature of approximately 85° C. and 30° C. upon exiting. The speed of the screws is set at approximately 400 revolutions per minute.

A soft paste with a viscosity equivalent to 13 Pa.s when it exits is obtained, and this paste possesses the form of a sole stable and uniform phase, while being capable of being removed by means of a brush or pencil for application. This composition allows a uniform coating to be obtained, and it is easily spreadable, while possessing considerable softness. The coating which is obtained also possesses a light texture and can be worn comfortably throughout the day.

Example 2:

Lipstick is prepared in the form of a soft paste with the following composition:

• Jojoba oil	20 g
• Vaseline oil	20 g
• Canolin	20 g
• Candelilla wax	7 g
• Polyethylene wax	10 g
• Isoprene-glycol	1 g
• Pigments	12 g
• Fillers (talc and nylon powder)	10 g

This composition is prepared according to Example 1. A uniform composition possessing suitable cosmetic properties is obtained.

Example 3:

A base for treating the lips, in the form of a soft paste with the following composition, is prepared according to Example 1:

• Vaseline oil	22 g
• Isopropyl lanolate	20 g
• Lanolin	20 g
• Microcrystalline wax	15 g
• Carnauba wax	10 g
• Glycerin	10 g
• Tocopherol acetate	2 g
• Octylmethoxycinnamate	1 g

This composition exists in the form of a sole uniform phase, and it possesses suitable cosmetic properties, a certain pleasantness during application, and suitable moisturizing properties.

Example 4:

A composition which includes the following substances is prepared according to Example 1:

• Vaseline oil	22 g
• Isopropyl lanolate	20 g
• Lanolin	20 g
• Microcrystalline wax	15 g
• Carnauba wax	10 g
• Gelled aqueous phase (0.1 g of Carbopol + 9.9 g of water)	10 g
• Tocopherol acetate	2 g
• Octylmethoxycinnamate	1 g

A composition which exists in the form of a sole stable and uniform phase is obtained. It allows obtaining of a uniform coating which spreads easily.

Example 5:

A composition containing the following substances is prepared according to Example 1:

• Vaseline oil	17 g
• Isopropyl lanolate	15 g
• Lanolin	15 g
• Microcrystalline wax	15 g
• Carnauba wax	10 g
• Tocopherol acetate	2 g
• Octylmethoxycinnamate	1 g
• Gelled aqueous phase (1.25 g carboxymethylcellulose + 23.75 g of water)	25 g

A composition which exists in the form of a sole stable and uniform phase is obtained. It possesses suitable cosmetic properties.

Example 6: Comparison Example

Lipstick is prepared in the form of a conventional soft paste with the following composition:

• Vaseline oil	62 g
• Isopropyl lanolate	10 g
• Lanolin	10 g
• Microcrystalline wax	2 g
• Glycerin	5 g
• Pigments	5 g

Different ingredients are mixed at 100° C. by means of a stirring unit of the Moritz type. A heterogeneous mixture possessing two phases is obtained. With this method, it is not possible for a uniform dispersion to be obtained. If the proportion of wax is increased to 8% for example, it shall not be possible to obtain a uniform mixture either.

Claims

1. An extruded composition consisting of a lipophilic component and a hydrophilic component, characterized by the fact that it is provided in the form of a soft paste and a sole uniform phase, while being obtained by a process which includes a mixing stage during at least one portion of its cooling to ambient temperature.
2. A composition according to Claim 1, with the hydrophilic component being selected among polyhydric alcohols, gelled aqueous phases, or mixtures thereof.
3. A composition according to Claim Number 2, with the polyhydric alcohol being selected among compounds containing 2 to 8 carbon atoms and 2 to 6 hydroxyl groups, such as ethylene glycol, isoprene-glycol, glycerol, propane-1,2-diol, diglycerin, erythritol, arabitol, adonitol, sorbitol, and dulcitol, and/or among alcohol polyethers with an average molecular weight of 150 to 600, such as polyethylene glycol 300 and polyglycerin 500, or mixtures thereof.

4. A composition according to Claim Number 2, where the aqueous phase has been gelled by means of a gelling agent selected among:
 - Algae extracts, such as agar-agar, carrageen, and alginates;
 - Grain extracts, such as carob or guar extracts;
 - Fruit extracts, notably pectin;
 - Plant exudates, such as gum arabic, tragacanth gum, karaya gum, and ghatty gum;
 - Cellulose derivatives, such as carboxymethylcellulose;
 - Gelling agents of animal origin, such as gelatin or caseinates;
 - Exudates from micro-organisms, such as xanthan gum;
 - Synthetic gelling agents, such as acrylic polymer derivatives or silicon derivatives, or mixtures thereof.
5. A composition according to Claim Number 4, where the gelling agent shall be present within the aqueous phase in a proportion of 0.2% to 10% by weight.
6. A composition according to one of the preceding claims, where the hydrophilic component shall possess a viscosity of 0.1 Pa.s to 25 Pa.s (1 to 250 poises), and preferably from 3.0 Pa.s to 25 Pa.s (30 to 250 poises).
7. A composition according to one of the preceding claims, where the lipophilic component shall be selected among waxes, oils, gums, and/or paste-like fatty substances which contain hydrocarbons and/or silicones and are volatile when necessary, either separately or in a mixture.
8. A composition according to one of the preceding claims, containing 1% to 35% of the hydrophilic component by weight, and preferably 3% to 15% by weight.
9. A composition according to any of the preceding claims, which shall include from 65% to 99% of the lipophilic component by weight and where 8% to 40% of said component by weight may consist of waxes, with 60% to 92% by weight consisting of oils.
10. A composition according to any of the preceding claims, where the lipophilic component shall include at least 10% by weight in waxes in relation to said composition, and preferably from 15% to 25% by weight.
11. A composition according to any of the preceding claims, with a dynamic viscosity between 3 and 35 Pa.s at 25° C., which is to be measured with a CONTRAVES TV rotary viscosimeter containing an "MS-R4" rotor with frequency of 60 Hz.
12. A composition according to any of the preceding claims, when it does not include a surface-active agent.
13. A composition according to any of the preceding claims, existing in the form of a beauty care product for the skin, such as a foundation, a facial rouge or eye shadow, mascara, eye liner, lipstick, or a basic coating for lips, or in the form of a skin care product, a sun protection or tanning product, or a hair care product.
14. A method of preparing a composition according to any of the claims identified as 1 to 13, where at least one portion of the process is completed by means of an extrusion mixer, and where the mixture of different ingredients of said composition shall be mixed during at least one portion of its cooling to ambient temperature.

15. A process according to Claim Number 14, where a preliminary mixture containing at least a portion of different ingredients of the respective composition shall be prepared, with inclusion of ingredients with a high melting temperature, and wherein the preliminary mixture is to be heated to a temperature at which it shall melt, with the remaining ingredients being added subsequently at one or more points, and where the mixture which is to be obtained shall be mixed within an extrusion mixer for at least a portion of its cooling to ambient temperature.
16. A process according to Claim Number 14, where the entirety of the ingredients shall be introduced into the top portion of the extrusion mixer when they are either cold or warm, and where the temperature of said mixture shall ultimately be increased in order to obtain a uniform mixture, while mixing and continued mixing shall occur for at least a portion of cooling to ambient temperature.
17. A process according to one of the claims identified as 14 to 16, wherein the heating stage shall be completed within an extrusion mixer.
18. A process according to any of the claims identified as 14 to 17, where the different stages of the process are to be completed within one or more extrusion mixers.
19. A process according to any of the claims identified as 14 to 18, where the different stages of the process are to be completed within a sole extrusion mixer with twin screws.